The University of Chicago

HAWAIIAN HEIAUS

A PART OF A DISSERTATION SUBMITTED TO
THE GRADUATE FACULTY IN CANDIDACY FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF ANTHROPOLOGY
1930

By
WENDELL CLARK BENNETT

Private Edition, Distributed by
THE UNIVERSITY OF CHICAGO LIBRARIES
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INTRODUCTION

One of the outstanding features of Hawaiian archaeology is the heiau or temple. Because of the large size of the stone foundations and the striking features associated (such as tapa covered towers, idols, and large grass houses) the heiau has impressed all visitors from the time of the early voyagers and missionaries on to the present. As a consequence many descriptions of heiaus are available in the Hawaiian literature.

Despite the amount of descriptive material, the data on the Hawaiian heiaus have never been adequately classified. Some tentative types have been suggested by various writers, but these were based on impressions rather than a careful survey of all the descriptions. The purpose of this treatise is to classify the materials available into types of structures that represent the Hawaiian Islands. Secondarily the paper illustrates the method of classifying descriptions and correlating archaeological with literary and historical materials.

A year's field work in Hawaiian archaeology performed in 1928 and 1929 on the island of Kauai served as the primary basis of this paper. The body of the paper consists in classifying and correlating descriptions of 746 heiau (temple) sites according to their ground plan form, their special internal features, their construction materials and techniques, and their function in the Hawaiian religion.

The method of procedure is as follows. The classification is kept flexible to meet the variations as they are found. The construction methods are next described and their relation to

the classified types examined. Then the features of the heiaus are described and with each one the known historical descriptions are compared to the archaeological remains. The relation of these features to the descriptive types is shown, chiefly through tables. The literature is then examined for the function of heiaus. As many of the heiaus are known to have served one of these functions, the relation of the functional types to the descriptive types and to the special features can be described. Other structures that possibly related to the religious ones are briefly described.

The comparative section of the paper has for its purpose the tracing of Hawaiian heiau types and features in the Polynesian and Micronesian islands in order to determine the position of Hawaiian temples in relation to these islands, and to determine the chronology of types in Hawaii. The problem, in brief, is the treatment of the Hawaiian heiau, - its forms and significance.

The materials may be concisely presented by means of tables with a few explanatory remarks.

TABLE I

On the basis of ground plans the Hawaiian temples may be descriptively classified under the following categories:

I. Sacred Places

- A. Natural Sites
- B. Slightly Modified Areas

II. Small Heiaus

- A. Open Platforms
  1. House foundations
  2. Special structures
  3. Terraced platforms
- B. Walled Enclosures
  1. Plain rectangular
  2. Notched rectangular
  3. Specialized

III. Large Heiaus

- A. Open Platforms
  1. Raised on all sides
  2. Terraced on a slope
  3. Crowning a hill top
  4. Low terraced divisions
- B. Walled Enclosures
  1. Square and rectangular
  2. Notched rectangular
  3. Divisioned enclosures
  4. Front side open
- C. Terraced
  1. Two-terrace types
  2. Three-terrace types
  3. Four-terrace types

IV. Combination Heiaus

- A. Platform and Enclosure
- B. Two or more Enclosures
- C. Series of Small Structures

V. Round Heiaus

VI. Unclassified Heiaus

- A. Large
- B. Specialized Forms

Unidentified and Destroyed Heiaus

Table I shows the frequency and distribution of these types throughout the Hawaiian Islands.

TABLE I

FREQUENCY DISTRIBUTION OF HEIAU TYPES

CLASS	HAWAII	MAUAI	KAUAI	OAHU	MOLOKAI	LANAI	ALL ISLANDS
I.	7	3	6	1	8	1	26
A	2	2	5	1	3	0	13
B	5	1	1	0	5	1	13
II.	12	42	32	4	16	10	117
A	5	26	24	2	12	8	78
1	3	16	22	2	6	6	55
2	1	6	0	0	5	2	14
3	1	4	2	0	1	0	9
B	7	16	8	2	4	2	39
1	5	6	8	2	1	1	23
2	0	7	0	0	0	0	7
3	2	3	0	0	3	1	9
III.	58	78	46	31	24	7	236
A	29	45	18	12	18	7	129
1	19	23	0	5	6	0	53
2	6	15	7	4	8	4	44
3	3	5	7	2	2	1	20
4	1	2	4	1	2	2	12
B	27	29	22	15	5	0	100
1	16	10	17	11	5	0	61
2	2	14	2	0	0	0	18
3	5	1	3	2	0	0	11
4	4	4	0	2	0	0	10
C	2	4	6	4	1	1	17
1	0	3	2	2	0	0	7
2	1	1	3	2	0	0	7
3	1	0	1	0	1	0	3
IV.	9	12	0	0	9	1	31
A	2	3	0	0	3	0	8
B	0	5	0	0	0	0	5
C	7	4	0	0	6	1	18
V.	0	0	5	2	1	0	8
VI.	18	9	18	18	12	0	75
A	18	9	15	18	12	0	72
B	0	0	3	0	0	0	3
Destroyed	73	77	15	50	37	1	253
Totals	177	221	122	106	107	20	746

In general the large heiaus are more numerous than the small ones. The simplicity of the small heiaus in construction and use makes this conclusion paradoxical. It is probable, in fact, that at any given time of Hawaiian history the small heiaus in use were more numerous than the large. Their very simplicity allows their sites to be easily forgotten. Probably only the important of these small heiaus are remembered.

The platform types of the small heiaus predominate. In both the platform and enclosure types the simple unelaborated rectangular forms are the most common. In appearance these are like ordinary house foundations. Many Hawaiian houses did not have stone foundations, so that it is even more probable that the sites of sacred structures of this type would become lost. Even the more specialized small heiaus might have been slightly elaborated house sites, and those few that seem too complex might be considered as large heiau types.

Among the large heiaus the platforms and the enclosures are about the same numerically, and the terraces are comparatively rare. Single terraces are common, but are considered here as a subdivision of the open platform type. The heiau of two or more terraces is very effective in appearance and not very difficult in construction, so that the scarcity is surprising.

The plain rectangular outline is outstandingly constant, the variations being numerically unimportant and structurally minor. The types too are relatively constant, the combinations or significant variations being few in number. These facts are more interesting when it is noted that no two structures, in good enough condition to have plans made of them, are exactly alike. The arrangement of the internal features presents many differences to otherwise closely similar plans. The round or oval forms of heiaus are very rare.

The small heiaus are most numerous on Maui and Kauai, but

were probably just as common on the other islands. Lanai has the greatest number in proportion to its size, as might be expected.

Maui, Molokai, and Lanai favor the open platform types. On Hawaii, Kauai, and Oahu the enclosures and platforms are in fairly equal proportions. Kauai lacks platform heiaus that are raised on all sides, but has its platforms represented by the single terrace.

The notched rectangular variety of heiau seem to be a Maui specialty. All seven of the small notched enclosures, and fourteen out of the eighteen large notched enclosures are found on Maui.

Three exceptionally long narrow enclosures are found on Kauai which possibly represent a local type.[1] Kauai also has the best examples of the terraced heiaus, especially those of three and four terraces. Five of the eight round heiaus are Kauai forms, but all these unfortunately have been destroyed. The three heiaus of class VIB are Kauai structures.

Oahu and Kauai are lacking in combination types, which is inconsistent with Kauai's abundance of specialties.

In size and mass effects Hawaii and Maui are the leaders. Kauai, though it has a few large structures, averages much smaller than the other islands.

The three-walled heiau, open at the front and terraced on the open facing, is an Hawaii type, though simpler examples are found on Maui and Oahu.

On the whole the local specialties are far overshadowed by the general similarities. For comparative purposes the Hawaiian islands can be treated as a unit with regard to heiau types.

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[1] See Puuhonuas, p. 79 of complete dissertation, to be found only in the University of Chicago Libraries.

TABLE II

Through historic accounts and archaeological record certain features are known to have been associated with heiaus. The following is a list of the most important features:

1. Houses
2. Terraces
3. Altars
4. Oracle Towers
5. Pits
6. Entrances
7. Steps and Paths
8. Uprights
9. Sacrificial Stones
10. Graves
11. Springs and Ponds
12. Pens
13. Ovens and Fire Places
14 Idols
15. Fences
16. Platforms
17. Related Structures
18. Trees
19. Rooms
20. Chambers
21. Towers and Spires
22. Stones for Umbilical Cord
23. Causeways
24. Petroglyphs
25. Tunnels and Trenches
26. Platform Like End Walls
27. Depressions
28. Miscellaneous

The table shows the frequency and distribution of these traits on the different islands. House sites are the most common features, and platforms and terraces next. Other features less distinctly delineated in the remains of the temples are still well enough represented to confirm the historic evidence. The minor features such as trenches, chambers, towers, and the like are probably highly specialized. The chambers and trenches are possibly construction techniques rather than regular features.

TABLE II

FREQUENCY AND DISTRIBUTION OF HEIAU FEATURES

Feature Number	Hawaii	Maui	Kauai	Oahu	Molokai	Lanai	All Islands
1	17	22	16	2	3	4	64
2	9	25	5	4	2	2	47
3	10	0	6	3	1	0	20
4	7	1	3	2	0	0	13
5	13	22	5	1	2	1	44
6	18	15	6	1	1	1	42
7	9	10	4	0	1	0	24
8	2	1	6	0	0	0	9
9	5	0	1	1	0	1	8
10	7	16	4	0	1	1	29
11	6	2	3	1	0	0	12
12	4	17	1	1	0	3	26
13	1	2	2	0	1	4	10
14	15	8	0	0	1	3	27
15	4	0	0	3	0	0	7
16	18	32	0	2	1	2	55
17	8	3	0	1	1	1	14
18	5	0	0	0	0	0	5
19	3	0	3	0	0	0	6
20	3	0	1	0	0	0	4
21	3	3	2	0	0	0	8
22	0	0	2	0	0	0	2
23	1	1	0	0	1	0	3
24	2	1	0	0	0	2	5
25	1	4	0	0	0	0	5
26	4	3	0	0	0	0	7
27	1	2	0	0	0	0	3
28	0	0	0	0	2	0	2

TABLE III

This table shows the correlation of the heiau features to the heiau foundation types previously mentioned (Table I). The large heiaus are distinguished both by their size and features from the small heiaus. Indeed specializations of any type are sporadic rather than regular in the small heiau class. Again, most of the features are associated with the regular types of heiaus, namely the open platform and the enclosure. These two types are, of course, also the most numerous. It is of more interest to note the equality of the division of features between these two types. The terraces are more frequently found in the enclosure type, probably because the walls make the construction of a terrace easier than does the open platform. Also the enclosures preserve evidence of entrances better than open platforms do, and thus dominate this feature. There is a slight predominance of altars and oracle towers in the enclosures, but not a convincing one. This equality of feature distribution between open platforms and enclosures bars any conclusive evidence, on this score, as to the relative chronology of the two heiau types.

TABLE IV

Absolute correlations of heiau types and features are impossible since the units are not equal, due to destructibility both of features and heiaus. From the historic descriptions, houses and idols are the most permanent of the features, appearing in almost every heiau. Altars, too, are constant features of the temples. The combination of house, idols, altar, and oracle tower is frequently referred to, and by inference and the archaeological evidence the refuse pits might be added to this list. The table is composed of an interesting list of heiaus which have numerous features associated. First on the list is the famous, though now destroyed, heiau described by Captain Cook when he landed at Waimea, Kauai.

TABLE III

RELATION OF FEATURES TO HEIAU TYPES

CLASS TYPE	HEIAU FEATURES											
	1	2	3	4	5	6	7	8	9	10	11	12
I.	(1)											
A	1											
B												
II.		(2)			(2)	(1)		(2)		(1)		
A		1			1			1		1		
1												
2					1			1				
3		1								1		
B		1			1	1		1				
1												
2		1			1	1						
3								1				
III.	(55)	(40)	(19)	(13)	(36)	(38)	(19)	(5)	(6)	(21)	(11)	(24)
A	29	12	6	3	16	10	10	3	2	10	6	13
1	8	4	4	2	6	4	2	1	0	2	2	2
2	12	6	0	0	7	4	7	0	1	5	4	7
3	3	0	0	0	0	0	0	1	0	2	0	2
4	6	2	2	1	3	2	1	1	1	1	0	2
B	20	25	11	8	18	24	7	2	4	11	4	10
1	10	13	7	5	9	16	4	1	3	5	3	4
2	5	9	0	2	5	4	1	1	0	3	0	4
3	2	1	2	0	2	2	1	0	1	3	1	0
4	3	2	2	1	2	2	1	0	0	0	0	2
C	6	3	2	2	2	4	2	0	0	0	1	1
1	4	3	2	2	2	2	0	0	0	0	0	1
2	2	0	0	0	0	1	1	0	0	0	1	0
3	0	0	0	0	0	1	1	0	0	0	0	0
IV.	(5)	(4)	(1)		(5)	(3)	(4)			(3)		(1)
A		1			2	1						
B	1	2				1	2			1		
C	4	1	1		3	1	2			2		1
V.												
VI.	(3)	(1)			(1)		(1)	(2)	(2)	(2)		(1)
A	1				1				2	2		1
B	2	1					1	2				
Destroyed										(2)	(1)	
Totals	64	47	20	13	44	42	24	9	8	29	12	26

Note: Division totals in parentheses, sub-totals underlined.

TABLE III (Continued)

HEIAU FEATURES															
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
(1) 1	(1) 1				(1) 1										(1) 1
			(1) 1 1					(1) 1 1					(1) 1 1		
(8)	(20)	(3)	(44)	(13)	(2)	(6)	(3)	(6)	(2)	(1)	(4)	(3)	(6)	(2)	(0)
4	11	2	20	3	0	2	2	3	1	1	2	2	0	1	0
0	8	2	9	1	0	1	2	1	0	1	0	1	0	1	0
2	2	0	8	0	0	1	0	1	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
2	1	0	2	1	0	0	0	1	1	0	2	1	0	0	0
2	9	1	23	10	2	3	1	3	1	0	2	1	6	1	0
1	5	1	11	5	1	0	1	3	1	0	2	0	1	0	0
0	0	0	6	1	0	0	0	0	0	0	0	0	1	1	0
1	2	0	2	4	1	3	0	0	0	0	0	0	3	0	0
0	2	0	4	0	0	0	0	0	0	0	0	1	1	0	0
2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	(4)	(1)	(9) 3 3	(1) 1	(1)					(2) 1		(1) 1			
1	4	1	3		1					1					
	(1) 1	(1) 1	(1) 1											(1) 1	
	(1)	(2)			(1)		(1)	(1)			(1)	(1)			(1)
10	27	7	55	14	5	6	4	8	2	3	5	5	7	3	2

TABLE IV

EXAMPLES OF HEIAUS WITH NUMEROUS FEATURES ASSOCIATED

	SITES	TYPE	HEIAU FEATURES																									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	Cook's	IIIA1	x		x	x		x	x				x			x	x					x						x	
2	--	IIIB3	x	x	x		x	x	x			x				x		x	x		x							x	
3	--	IIIA2	x	x			x	x	x				x																	
4	--	IIIB1	x	x	x	x	x	x								x	x		x										
5	--	IIIB1	x	x	x	x	x	x	x									x	x						x		x		
6	--	IIIB1	x	x	x	x	x	x			x					x		x	x										
7	--	IIIB1	x	x	x	x	x	x			x			x		x		x	x	x									
8	--	IIIB4	x	x	x	x	x	x	x							x		x				x							
9	--	IIIA1						x	x							x													
10	--	IVC	x				x	x										x	x				x						
11	--	IIIB1						x	x			x				x									x				
12	--	IVC	x		x							x		x			x	x	x										
13	--	IIIC1	x	x	x	x										x	x												
14	--	IIIB1	x				x	x	x			x		x												x			
15	--	IIIB1	x				x	x				x		x		x		x					x						
16	--	IIIA2	x	x			x	x	x			x		x									x						
17	--	IIIB1	x	x			x							x									x						
18	--	IIIA2	x	x					x			x	x		x	x		x											
19	--	IIIA2		x			x		x					x				x											
20	--	IIIA4	x	x			x											x											
21	--	IIIB2		x					x					x				x									x		
22	--	VIA	x									x		x				x										x	
23	--	IVB	x					x	x			x		x		x		x										x	
24	--	IIIB2		x			x	x				x						x									x		
25	--	IIIA4	x	x				x							x	x		x	x						x				
26	--	IIIA4	x	x		x	x		x															x					
27	--	IIIB1	x	x	x	x		x		x		x																	
28	--	IIIB2	x	x		x	x	x		x																			
29	--	IIIA4	x	x	x		x			x																			

TABLE V

A classification of heiaus based on their functions must be considered, even though the information is scanty. The sources are the native historians, such as Malo and Kamakau, plus slight information from the living Hawaiians.

The dual division into Major and Minor Heiaus is confirmed by all the sources. The basis of the division is that of chiefs versus commoners. The Major Heiaus could only be built by the chiefly class, while the Minor Heiaus could be built by chiefs or commoners.

The Major Heiaus include three functional types. First are the sacrificial heiaus, called either Luakini or Pookanaka, which could only be built by the highest chiefs and which were the only ones used for human sacrifice. Second are agricultural heiaus (referred to by many titles such as: Hooulu-ai, Hooluuluai, Husbandry, Rain). These could be built by any of the chiefs and were benevolent rather than sanguine in their purpose. Third are the king's private heiaus, used for private worship or burial by the chiefs.

The Minor Heiaus served a great variety of functions and were probably associated with lesser priests. Some of the functions were: Tapa beaters, child birth, debt, hula dancers, surf riders, canoe builders, love impelling, poisoning, circumcision, agriculture, prayer, prophets. The houses used by the priests often functioned, and are now remembered, as minor heiaus, though the term "priest's" heiau also refers to the priest's school.

The table shows the frequency with which these terms occur in reference to heiaus. Those heiaus classified as major far out-number the minor ones, which indicates that their importance has caused them to be better remembered.

TABLE V

DISTRIBUTION OF FUNCTIONAL TYPES

	HAWAII	MAUI	KAUAI	OAHU	MOLOKAI	LANAI	TOTAL
MAJOR HEIAUS	(46)	(15)	(20)	(38)	(30)	(1)	(150)
1. Sacrificial	29	7	15	28	16	0	95
a.Luakini	23	7		6	15		51
b.Pookanaka	6		15	22	1		44
2. Agricultural	11	8	5	10	10	1	45
a.Hooulu-ai	1	2		2	2		7
b.Husbandry			2	7	2		11
c.Hooluuluai	3	2			1		6
d.Rain	1	3		1	4	1	10
e.General	6	1	3		1		11
3. King's Private	6				4		10
a.Prayer	4				4		8
b.Burial	2						2
MINOR HEIAUS	(12)	(2)	(8)	(1)	(5)	(1)	(29)
1. Miscellaneous	11	2	8		3	1	25
a.Tapa Beaters		2	1			1	4
b.Women's	2						2
c.Debtors			1				1
d.Hula	1		3				4
e.Canoe Builders	1						1
f.Surf Riders	1						1
g.Love Impelling					1		1
h.General	6		3		2		11
2. Priests	1			1	2		4

TABLE VI

This table shows the relation of the functional types to the descriptive types previously shown (Table I). The identification of the sacrificial heiaus with the large types is confirmed. Sacrificial heiaus are most frequently the open platform and enclosure types, followed by the general "large" group. The equality of distribution between the open platform and enclosure types is again apparent, with the emphasis on the plain form of these two classes. Almost every type of heiau is represented in at least one heiau of the sacrificial group. There is, of course, the possibility of error both in the remembrance of the function and the identification of the site. Also, as before stated, the descriptive classification disregarded function, and so some of the heiaus classed as small might well have served as important sacrificial structures.

The agricultural heiaus are not as predominantly large as are the sacrificial heiaus. The fact that they could be built by chiefs meant that they might be large, not necessarily that they must be. The king's private heiaus, as described by the historians, were not of large size. Several are classified as large open platforms. However, the foundation platforms or single houses commonly extended beyond the limitations of the house, and it is these foundations that are descriptively classified.

The minor heiaus show a dominance in the smaller types as was expected. The priests' heiaus are a combination type consisting of groups of small platforms and enclosures.

Undoubtedly every heiau had one or more fairly definite function, and the absence of data on the majority of the known sites affects some of these figures. The material available today on this phase is very slight. This is illustrated in Table V, in

which the functions for the heiaus of Hawaii, Kauai, Oahu, and Molokai, are better known than Maui, which has the most heiaus numerically. The first four islands had surveys made a number of years ago which furnished most of the material on functions, while today but few accurate facts can be gathered.

TABLE VI

RELATION OF FUNCTIONAL AND DESCRIPTIVE CLASSIFICATIONS

DESCRIPTIVE TYPES	FUNCTIONAL TYPES											
	MAJOR						MINOR					
	Sacrificial			Agricultural			Private			Miscellaneous			Priest's
I. Natural	2			2						2			
A													
B		2			2						2		
II. Small	5			7			2			10			
A		1			5			2			6		
1			1			3			2			3	
2						1						1	
3						1						2	
B		4			2						4		
1			3			1						3	
2						1							
3			1									1	
III. Large	40			12			4			5			
A		20			6			3			4		
1			12			4			2				
2			4			2			1			3	
3			2									1	
4			2										
B		16			6			1			1		
1			9			4						1	
2			1			1							
3			3						1				
4			3			1							
C		4											
1			2										
2			1										
3			1										
IV. Combination	2			4			1			2			2
A								1			1		
B													
C		2			4						1		2
V. Round	2												
VI. Large	23			6			1			1			
A		23			6			1			1		
B													
Destroyed	21			14			2			5			2
Totals	95			45			10			25			4

TABLE VII

The correlation of the functional types with the heiau features is shown in this table. The data are not sufficient to draw final conclusions, but it is significant to note that features are far more numerous with the sacrificial types. Especially house sites, terraces, altars, oracle towers, pits, entrances, and idols are combined in the sacrificial heiaus. These features include the general paraphernalia required by a sacrificial heiau.

Other heiaus with several features combined are shown in Table IV. Of these twenty-nine only five are described as sacrificial (Nos. 4, 7, 8, 12, 26). On the basis of features others might be added to the sacrificial group, such as Numbers 1, 2, 3, 5, 6, 13, 23, 28, 29.

TABLE VII

RELATION OF FEATURES TO FUNCTIONAL TYPES

FUNCTIONAL TYPES	HEIAU FEATURES																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Sacrificial Heiaus	14	6	10	7	7	3	3	1	3	3	1	2	1	7	3	3	2		2	2	1	1				1	1	
Agricultural Heiaus	4	2			2	3				1	1			1		5	1				1							2
King's Private Heiaus					1												1		1									
Miscellaneous Heiaus	3	2			2	1	2				1	2		1		2												
Priest's Heiaus																												

CONCLUSIONS

A. Summary of Heiau Section

B. Distributions

1. Types

a. Small open platforms with uprights
b. Enclosures and platforms
c. Other types

2. Features
3. Construction techniques and materials
4. Functions

a. Sacrifices
b. Women tabu
c. Names

C. Chronology of Heiau Types

D. Final Summary

Summary of Heiau Section

A descriptive classification of heiau foundations on the basis of ground-plan form revealed a few general types that persisted despite minor individual variations. These were in general large or small heiaus; open platforms, enclosures, and terraces. There was not an absolute demarcation between the large and the small temples on the basis of measurements alone, a number of structures being intermediate, and the 50-foot dividing size being arbitrary, but a majority of the heiaus fell clearly into one of the sections. Likewise there were combinations of platforms, enclosures, and terraces; but in consideration of the number of structures that conformed to one of the types the variations were few. Furthermore, elaborate combinations were not found. Most of the heiaus were relatively simple, though some were of rather

exceptional size.

A compilation of the features associated with heiaus gathered from the literary sources and the archaeological remains showed houses, special terraces, pits, entrances, and special platforms to be the most constant associates of temples. Oracle towers, altars, paths, graves, pens, ponds, idols, and related structures were also of frequent occurrence. The combination of house, altar, oracle, pit, and idols was the most frequent. The distribution of features according to the descriptive classification emphasized the distinction of large and small heiaus, the features being overwhelmingly confined to the large types.

From literary and traditional sources the heiaus were classified according to their function. Here the major and minor division was that of chief versus commoner. In a general way this duality of function according to owner was reflected in the size of the heiau, the larger structures being built by the chiefs. A subdivision of the major class distinguished the war heiaus from the agricultural ones. This was an important distinction, the war heiaus, among other special qualities, being the only ones at which human beings were sacrificed. These war heiaus were to some degree distinguished by the associated features, namely, altars, oracle towers, and pits, though the evidence was rather skimpy on this point.

Among the large heiau forms the enclosures and the open platforms were about the same numerically, and together far outnumbered the terraces, combinations, and round types. This relation was maintained in regard to the features and function. Except for a slight dominance of the enclosures in the special terraces and entrances, the features were equally distributed between the two types. Functions showed a like equality in distribution between the enclosure and the open platform.

The distinction between large and small heiaus can thus be made, based chiefly on function, but closely correlated with size and features. Furthermore the rectangular enclosure and the rectangular platform are the typical forms of the large heiaus, undistinguished archaeologically, or, so far as known, functionally.

The Nihoa-Necker type of religious structure is a distinct type, possibly being represented in a vestigial manner in some of the Kauai heiaus, and probably once a general Hawaiian form. It is not to be confused with the other small heiaus, as the latter are in most cases house foundations while the Nihoa-Necker type were open.

Construction methods consisted of a few simple techniques, stepped walls and double facings being common. The so-called "honey-comb" platform technique found on Hawaii was the only marked complexity noted. Rough or water-worn stone was commonly employed, dressed stones being exceedingly rare. Slabs were seldom employed in facings and were never used alone as walls. The common paving was flat stones and a pebble fill. Coral was often associated with the temples.

Distributions

Tables VIII and IX show the Polynesian distributions of features and other traits related to heiaus. The comparative section of this paper takes up in some detail the points summarized in these tables. It is not always possible to find absolute parallels due to inadequate information. One difficulty that is prominent is the necessity of reducing the temple forms to a comparable basis. Three to five hundred years elapsed from the time of the last migrations of any importance and the first contact of Europeans in Polynesia. In a period of such duration many local developments and changes were probably wrought in the temple forms. The weighting of materials is exceedingly difficult, especially in those island groups with but one or two casual accounts. As stated

TABLE VIII

SOME HAWAIIAN HEIAU POLYNESIAN COMPARISONS

Features	Hawaii	Marquesas	Society	Tuamotu	Cook
Types of Temple Structures					
1.Terrace with uprights facing cleared area.	Nihoa-Necker and possibly Kauai.	No.	Inland Moorea and Tahiti.	Typical.	No.
2.Large walled enclosures.	One of the typical forms.	Uncommon. Platforms enclose tohuas.	Typical in large marae.	Mentioned.	Stone walled enclosures.
3.Large open platforms.	One of the typical forms.	Typical.	One marae form.	?	Mentioned but not common.
4.Houses as temples.	In small types. Houses on large ones.	Part of small me'ae; not a temple.	House associated only.	No.	House associated only.
5.Burial mounds as sacred structures.	No; some burial on temple.	A mortuary me'ae as one type.	No; some burial on marae.	No; some burial on marae.	?
6.Temple part of larger unit, as council, etc.	Some idea of coalescence.	Me'ae associated with tohua.	Marae a part of large enclosure.	No.	Council of chiefs at temple.
Types of Materials					
1.Rough stone.	Typical for fill and facing.	Extensively used in fill and facing.	Common for fill and facing.	Typical in fill and some facing.	?
2.Slabs used as walls or in facing.	Rare in facing; not used as wall.	Common as facing; not as walls.	Used as facing; not as walls.	Used as facing; not as walls.	No?
3.Dressed stone.	Rare use as slabs.	Typical; slabs unjointed.	Dressed slabs as facings.	No.	No.
Miscellaneous					
1.Human sacrifice.	Common at war temples only.	At some me'ae.	At some marae.	At some marae.	Occurs.
2.Temples tabu to women.	Excluded from the temple.	Only parts of tohua; and me'ae tabu.	Tabu in large marae and parts of small.	From marae proper.	?

TABLE VIII (Continued)

Austral	Easter	Gambier	New Zealand	Samoa	Tonga	Fiji
Image marae like Easter.	Images as uprights. ?	No.	Low mounds with uprights.	No.	No.	No.
Slab wall enclosure typical.	No.	No?	No.	One rare temple had wall.	No.	Sticks around mbure.
Not typical; only the image platforms.	Image platforms and others.	Typical temple foundation.	No.	No.	A common form.	No.
House possibly associated.	No.	House is temple; but on platform.	Council and ceremonial house.	Houses are temples.	Houses associated only.	Houses are temples.
Burial in image platform. ?	Most ahu for burial.	?	Burial at tuahu in Chatham Island.	Non-sacred family burial platforms.	Langi are chiefly burial structures.	?
Enclosures part of larger structure.	No.	No?	With council house and village green.	Council house is often a temple.	Open green associated with some langi.	Council house is temple.
Only in image platforms.	Extensive use for fill and facing.	Chiefly as fill.	No.	Used in rare temples.	Some use as fill.	As fill and some facing.
Typically slabs as walls.	Used in some facing.	Used in some facing.	No.	No.	Typical as facing.	Some use as facing.
Retouch on some slabs tho rare.	Jointed slabs and blocks common.	Coral slabs as facing and paving.	None with temples.	House posts of Fale o le Fe'e.	Jointed slabs used extensively.	Some use of slabs in facing.
?	?	?	?	In early times.	Reported by Cook.	At time of temple building.
?	?	Probably; Beechey says No.	Women at some tuahu ceremonies.	Only priests at special temples.	Probably ?	Excluded from temple.

TABLE IX

DISTRIBUTION OF HEIAU FEATURES

FEATURE	Hawaii	Marquesas	Society	Tuamotu	Cook	Austral	Easter	Gambier	New Zealand	Samoa	Tonga	Fiji
1. House	x	x	x		x	x		x	x	x	x	x
2. Terrace	x	x	x	x			?					
3. Altar	x	x	x	x	?			x	x	?		
4. Oracle	x	?								?		?
5. Pit	x	x	?	x					?			
6. Entrance	x		?			x					x	x
7. Steps, Paths	x	x				x					x	x
8. Uprights	x		x	x	x	x	?		x			?
9. Sacrificial Stones	x	?	x		x							
10. Graves	x	x	x	x	x		x		?		x	
11. Ponds	x								?	?		
12. Pens	x											
13. Ovens	x			x					x			
14. Idols	x	x	x	x	x	x	x	x	x		?	
15. Fences	x	x	?						x			?
16. Platforms	x	x	x	x				?				
17. Related Struct.	x		?			x						
18. Trees	x	x	x		x			?	x	x	?	x
19. Rooms	x											
20. Chambers	x	?	x									
21. Tower	x											
22. Umbilical	x											
23. Causeway	x											
24. Petroglyphs	x	?	x								?	
25. Tunnel	x		x									
26. Wide End Wall	x	?	?									
27. Depression	x					x						
28. Stone Seats		x	x	?	x					?		?

previously the interest here is chiefly in the light that other islands may throw on the interpretation of Hawaiian heiaus.

Types.- Small open platforms with uprights. The typical Necker Island marae consisting of a raised stone terrace facing an open court with uprights on the terrace and in the court is found also in Nihoa Island and by assumption in Hawaii. It must be considered essentially Hawaiian because of the geographic position and size of the Nihoa and Necker Islands. Almost identical maraes are found in the interior of Moorea and Tahiti in the Society Islands, and maraes of this type are characteristic of the Tuamotus. Elsewhere in Polynesia the image platforms, notably of Easter Island and secondarily of Pitcairn and the Austral group, may possibly be considered as specialized developments of this type of marae. In New Zealand the upright slabs on the low dirt mounds that mark the religious sites echo this general idea. It is of course possible that later forms may have erased this type from other of the island groups, as happened in Hawaii, but on the basis of the present evidence the Society-Tuamotu groups present the closest parallels. Indeed the distribution of this one form centers in the Society group, while New Zealand, Easter, and Hawaii are marginal.

Large walled enclosures seem to have been best developed in Hawaii. The distribution finds true walled enclosures in the Society, possibly the Tuamotu, the Cook, the Austral (with single slabs as walls), and the Marquesas. There is some suggestion in the enclosure of a combination of a secular communal unit with a religious one. In the Marquesas the me'ae was a part of the tohua dance platforms. In the Societies there is some basis for considering the stepped pyramid at the end of the large enclosures as the true marae, or religious part. In the Cook the council of chiefs met at the koutu, which contained the maraes. In the Australs the

archaeology suggests that the enclosures are but part of a larger structure. In New Zealand, Samoa, and Fiji the council house often served as the temple. In Tonga an open green was associated with some langi. The absence of walled enclosures in New Zealand, Samoa, Tonga, and Fiji demonstrates that the combination of a council or communal gathering place and a religious place was not dependent on the enclosure. However, in those groups that used stone work extensively as lines of demarcation or as boundaries, an enclosed tribal gathering place, or council place, within which was a small marae, may have become completely absorbed into a religious unit. The opposite absorption is illustrated in Nukuhiva, Marquesas where the me'ae became part of the tohua and lost its distinctive name. Some Hawaiian accounts suggest that the large enclosures were once intended to hold the people as spectators of the ceremonies (performed presumably at some special part, or marae) and the exclusiveness was a later development. There is a slight possibility of Micronesian influence in the large enclosures, especially from Kusaie and Ponape in the Carolines Though the construction and mass of the walls of such ruins as the Nan-Matal are incomparable to the Hawaiian the general plans are similar. This similarity of form, and in this case of materials, is even more striking in regard to some of the interior structures of Ponape. The Societies present again the closest parallel to the large enclosures, though considerable local development of this form probably took place in Hawaii.

The large platform marae are possibly a development of the small ones first discussed, though such an evolution is not clear. In Hawaii the large platforms and enclosures were functionally equivalent. In the Societies the open platform is one type of marae; in the Marquesas it is the typical form of me'ae; in the Cook and on Easter open platforms are mentioned but not

common; in the Gambier the open platform served as the sacred house foundation; in Tonga the open platform was one form of langi. Elsewhere in Polynesia, i.e., New Zealand, Samoa, Tuamotu(?), and Australs, it is not found. In the Gambier group, as mentioned, the platform is the extended foundation of the sacred house. Houses were used as temples in Samoa, Fiji, and possibly New Zealand, and were associated with religious structures everywhere except possibly Easter and the Tuamotus. Linton[1] notes the resemblance of the Nukuhivan me'ae to the ordinary dwelling houses and writes further that "the Tongan and Samoan temples were of the same form as ordinary dwellings except that they were raised on mounds or platforms." In Hawaii the small heiaus were in many places houses of priests on ordinary house foundations. The possibility follows of the extension of the house foundation into a large platform on which the house occupied one part. This may have developed locally or may have been introduced from any of the groups in which the house was the essential sacred unit. Another possible development of the open platform heiau is the burial platform. In Tonga the open platform langi is a burial platform; in the Marquesas one form of me'ae was mortuary. Burial platforms are found in many parts of Polynesia including Hawaii, though not with religious connection. However, burial was not an essential function of the Hawaiian heiaus. Its occurrence was in exceptional cases and not in any sense universal. Such a development does not seem particularly probable for Hawaii.

The other temple forms found in Hawaii are numerically unimportant. The elaborations of the enclosure and platform types are probably local developments. Such forms as the three-walled

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[1] Ralph Linton, Archaeology of the Marquesas Islands. B. P. Bishop. Mus. Bull. No. 23 (1925), p. 35.

heiaus with stepped terraces leading up to the open front are known, in some instances, to have been built in relatively recent times. The terrace type of heiau may be considered as an elaboration of the open platform or enclosure. Some of the two-terrace forms resemble regular enclosures in which the rising ground of the site necessitated terracing to maintain a level floor. The stepped pyramid of the Societies is not found in Hawaii, though some of the stepped facings resemble them. Combination types are probably local variations. The round heiaus are rare and have never been adequately described. (The traditional round heiaus have all been destroyed.) Round and oval types of langi are common in Tonga, but the rectangle prevails in Polynesia.

Features.- The features found on Hawaiian heiaus also occur in other parts of Polynesia. There is nothing to show that the heiau reached Hawaii as a complex of established form and features. Although some of the features may have been associated, others certainly seem independent and some were doubtless evolved locally.

Houses are rather consistently associated with all but the first type of temple, i.e., the small platform facing an open court and containing uprights. Houses are not found associated on Easter or Pitcairn, nor with the image marae of the Australs or the tuahu of New Zealand. This in a measure strengthens the idea that the image ahu and the tuahu are special forms of the Necker type marae. In some groups the house is the council house, and in this the Melanesian and Micronesian men's house is reflected. The temple houses of the Marquesas and the Societies most resemble the Hawaiian in that they were priest houses in which were kept the idols and sacred paraphernalia.

The special terrace of the Hawaiian heiaus do not have a distinct enough function to justify any strict comparison. The

series of step-like terraces at one end of some enclosures, and containing the altar and some idols, suggests the stepped pyramid at the end of the Tahitian marae enclosure.

The similarity of the Society and Hawaiian wooden platform altars was noted by Captain Cook. Similar altars are found in New Zealand (and sometimes called whatá, the Tahitian name) and likewise in the Gambier group. The stone platforms, or pebble pavements, on which the sacrifices were laid before being placed on the wooden altars, are found in Hawaii as well as in the Society and Marquesas.

The Hawaiian oracle tower finds few Polynesian parallels. Only the Marquesan priest's house with its high pointed roof seems similar. The bell-shaped roofs of the temples set on high stone platforms in Samoa and Fiji are other remote possibilities.

Refuse pits would be expected as correlates of all temples at which animal or human sacrifices were offered, but supporting evidence is not to be found. Possibly the simplicity of this feature would cause it to be overlooked by many writers. Pits are found in the Marquesas for remains of sacrifices, and there are other pits for concealing sacred objects (a secondary usage). The Tuamotu marae have associated circular pits for the skulls of sacrifices. The Societies probably had pits, but none are mentioned in the literature. New Zealand sorcerers used pits for spells,- probably with no religious connotation.

It must be assumed that most of the larger structures had definite points of entry, though only in the Austral enclosures are definite entrances mentioned. Paths, paved and outlined, are also found in the Austral islands, though more elaborate than the Hawaiian. Steps and low platform approaches are found in some Marquesan structures, while large steps and ascending ramps are found in Tonga.

Methods of marking the positions of chiefs or priests in the temples took the form of stone slab seats, or of upright slabs. Both of these are rare in Hawaii, excluding the uprights of the Necker type marae. Carved wooden planks and upright stones tied with cloth, such as were pictured by Webber for the heiau at Waimea, Kauai, are both found in the maraes of the Societies, and the carved planks are mentioned for some of the Tuamotu maraes.

Both the Marquesas and the Societies had horizontal stones for sacrifice, those in the Society more closely resembling the Hawaiian. Graves and burial in religious structures had a wide distribution, as mentioned above under the discussion of burial platforms as a type of religious structure.

Pens and ponds seem Hawaiian associations, though sacred pools are found both in New Zealand and Samoa. Special fire places and ovens are not often mentioned. New Zealand has a four-stone fire pit on some tuahu, and ceremonial ovens. The Tuamotu marae had a turtle feast ceremony in which a special oven was used in cooking the food.

Idols, that is, carved figures, are commonly associated with religious structures. In the Marquesas and Society islands the wood and stone idols seem in position and function to parallel the Hawaiian, though nowhere is the fence of idols found. Idols on platforms are found in the Easter, Pitcairn, and Austral groups. Some of the Tuamotu upright slabs show traces of rude shaping as if for images, which suggests still further the parallel with those of Easter. The exact arrangement of idols found in the heiaus was not found elsewhere, though idols within the sacred houses (one of the Hawaiian positions) are found in the Marquesas, Society, and Gambier.

Some me'ae in the Marquesas and some tuahu in New Zealand were surrounded by poles much as some of the small heiaus of Hawaii

Specialized platforms on Hawaii again have no definite function associated and so are not comparable. When they contained the altar, oracle tower, and idols they compare possibly with the stepped pyramids of the Society marae. Structures related to the temples are found in the Australs, where other rectangular enclosures or paved areas are associated with the large ones.

Trees and sacred groves are widespread, sometimes growing within the enclosure and sometimes right on the platforms. The groups in which they are definitely associated are the Marquesas, Society, Cook, New Zealand, Samoa, Fiji, and secondarily associated in Gambier and Tonga.

The Society large marae had chambers in the walls for the dead before they were taken to the caves for burial. Tombs and vaults for the dead are found in several of the groups, but the Hawaiian chambers were probably not for this purpose.

Carved stones in temple foundations are not common, though they occur in the Marquesas and Societies. The association of petroglyphs with heiaus is equally rare.

A paved and lined depression was found in one enclosure in the Austral islands.

The Hawaiian heiau features of rooms, towers, stones for umbilical cords, causeways, tunnels, and specially widened end walls of enclosures, are not frequent and are probably local variations.

Construction Techniques and Materials.- The rarety of dressed stone and of the slab facings leaves little for comparison in the Hawaiian techniques and materials. Rough stone building is through its very simplicity generally similar wherever used. Rough stone finds extensive use in the Marquesas, Society and Tuamotus, and is used for fill in Easter and Gambier. The other

islands either use little or no stone work in temples or prefer slabs and dressed stone. Rough slabs of relatively small size (when compared to the Tahitian, for example) are used in some wall construction by being placed, together with small stone, in parallel rows and filled in between with rubble. This technique is also found, though not with large slabs, in the Marquesas and Society islands. The stepped facings of the heiaus seem to be local, though the possible connection to the stepped pyramid of the Societies has already been mentioned.

Function.- The Society group presents a functional division of maraes that closely parallels the Hawaiian. The maraes are International, Royal, Local, and Family. The general division of size corresponding to function is also found. Small marae are dedicated to shark gods, fishermen, canoe builders, and other functions resembling the Hawaiian array. The Marquesas likewise have chief's me'ae and agricultural me'ae. Not enough is known about the specific functions of the temples in most of the groups to permit any detailed comparisons.

Some temples in several of the groups had human sacrifice as part of their ceremonies. It is interesting to note that, like the Hawaiian, only certain of the temples of the group permit the practice. Thus human sacrifice at some temples is found in the Marquesas, Society, and Tuamotu groups. It occurs also in the Cook and Fiji Islands, and is reported for Samoa and Tonga.

The exclusion of women from temples was complete in Hawaii, but some of the heiaus had special structures nearby for women of royal lineage. In the Marquesas this exclusion of women was intermittent, though there were parts of the tohua and me'ae that were always tabu. In the Societies the women were excluded from the large marae and from parts of the small family ones. In the Tuamotus the women were excluded from the main section of the

Gambier there is some question of the exclusion, and in Chatham island the women conducted some of the ceremonies.

Most of the temples throughout Polynesia had distinctive names, and in some groups the right to a position in the marae gave a man social and legal standing.

Chronology of Heiau Types

The unreliability of much of the traditional evidence when applied to specific structures, and the continued changes that were made in the rebuilding and repair of the heiaus makes chronology of types a difficult problem. Some heiaus, for example, are said to have been built by the Menehunes, a mythical dwarfish race of the earliest Hawaiians. This apparent test of antiquity reveals the following array of descriptive types with 15 heiaus:

Frequency	Type	Frequency	Type
1	IA	1	IIIB2
1	IIB1	1	IIIB4
3	IIIA1	1	IIIC1
1	IIIA3	1	IIIC3
2	IIIB1	3	VIA

The term "Menehune" has come, apparently, to be applied to any structure, preferably of large size, which has no definite history.

Emory[1] comes to the conclusion that the Nihoa-Necker marae type came from the Society Islands and was the prevalent Hawaiian type before the immigrations of the twelfth and thirteenth centuries which brought the enclosure type, again from the Society Islands. This in a measure agrees with Fornander's[2] conclusion that the late migrations introduced the four-walled heiau "instead of the open truncated pyramidal structure of previous ages." In

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[1] Kenneth P. Emory, Archaeology of Nihoa and Necker Islands. B. P. Bishop, Mus. Bull No. 53 (1928), pp. 119-28.

[2] Abraham Fornander, An Account of the Polynesian Race, Vol. II. (London, 1890), p. 59.

the section on Construction Methods it was demonstrated that this "truncated pyramid" was a variation of the open platform necessitated by the use of water worn stones in a high platform. The open platform heiau, however, is probably not the survival of the Necker type.

Before advancing the discussion of the relation of the enclosure, open platform, and Necker types, the historic evidence should be briefly reviewed. Some heiaus are attributed to certain chiefs as builders, and this evidence, though in many instances not absolutely accurately, throws some light on the chronology problem. Starting with 23 heiaus said to have been built after 1700, chiefly by Kamehameha I (around 1800) the following list is obtained:

Frequency	Type	Frequency	Type
1	IB	1	IIIB3
3	IIIA1	3	IIIB4
2	IIIA2	1	IIIC3
1	IIIA3	1	IVC
1	IIIA4	3	VIA
3	IIIB1	3	Destroyed

Twelve heiaus dated between 1500 and 1700, that is starting with the time of Umi, classify as:

Frequency	Type
3	IIIB1
1	IIIB3
2	VIA
6	Destroyed

Eight heiaus dated between 1400 and 1500, built chiefly by Liloa, classify as:

Frequency	Type
4	IIIA1
1	IIIA3
3	Destroyed

Finally two heiaus attributed to Paao, 28 generations back, are type IIIB1 and are used by Fornander as illustrations of the first introduced enclosures.

This evidence, sketchy as it is, shows an emphasis on platforms in the 15th century and on enclosures in the 16th century, though on the whole a balance of enclosure and platform types throughout. If the builders of the seven hundred odd Hawaiian heiaus were known, more light would be thrown on the problem by this method.

Returning again to the chronological problem, the statement may be repeated that the open platform heiaus are probably not survivals of the Necker type. The open platforms have not been supplanted by the enclosures in numbers, function, distribution of special features, and in time of construction, but have been shown to be equal to the enclosures. The incorporation of the distinctive Necker type features has been found in enclosure type heiaus, not on open platforms, —an incorporation paralleled in the Society Islands.

The open platform is distinct enough from the enclosure to discourage the idea that the two types are variations of a common form. There is some support for a theory of local development of the open platform type as an enlarged house foundation. The persistence of the platform types argues for their development or introduction after the enclosures. The migrations of the 12th and 13th centuries were sufficiently strong to wipe out the Necker type from the Hawaiian Islands, and would probably have done the same to any other type existing at the time.

The subdivisions of the enclosure and open platform types, as well as the combinations, terraces, and specialized forms may best be considered as local developments. The development of the notched rectangular form (IIIB2) on the Island of Maui is an illustration of such a specialization process.

Final Summary

The Hawaiian heiaus find most of their analogies in Polynesia. Melanesia offers little but indirect suggestions, and Micronesia likewise. The extensive use of stone in construction and the ground plans of some enclosures are a possible contribution of the Carolines to the Hawaiian problem, though as yet no direct connection can be inferred. The northern branch of the Polynesian routes as given by Best,[1] coming from the northeast tip of New Guinea via Nukuoro, Ralick, and Radack in the Marshall group direct to Hawaii, gains no support from the heiau evidence, which points southward for all forms.

The Polynesian comparison of heiau forms and features points to the Society and Marquesas groups as the most closely related. The Society Islands are the closest in number and significance of similarities, though Marquesan contacts are undeniable.

The possibilities of local developments of platforms and enclosures from house foundations, from paved and enclosed assembly places (malae, in one of its common Polynesian meanings), or from stone covered graves, outweighs the necessity for difficult diffusion to account for temple forms, as for example from Central America.

The Hawaiian heiaus present an elaborate local combination and development of temple forms introduced from other of the Polynesian islands, principally the Society Islands.

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[1] Elsdon Best, "Polynesian Navigators: Their Exploration and Settlement of the Pacific," The Geographical Review, Vol. V, No. 3 (March, 1918), p. 176.